

PATENT

Serial No. 10/822,326

Docket No. JSF01-0041/WJT08-0068

tape casting; and
dip coating.

7. (Original) The method of claim 1, wherein said step of subjecting said thick film to UV radiation exposure after it is coated onto said substrate includes using a photo mask in the exposure process to define exposure patterns intended for the film to receive.

8. (Original) The method of claim 1, wherein components in said fabricating a tunable dielectric slurry, are selected from the group consisting of:

ceramic powder;
photosensitive polymer;
photoinitiator;
solvents;
photo inhibitor; and
adhesion promoter.

9. (Currently Amended) The method of claim 1, wherein said tunable dielectric is ~~Parascan® Tunable dielectric~~ barium strontium titanate.

Cancel claims 10 – 25.

REMARKS

Reconsideration of this application is respectfully requested in light of the above amendments and following remarks. Claims 1 – 9 remain in the application; claim 9 has been amended and claims 10 – 25 have been cancelled.

I. Regarding the objection of claims 4 and 5 because "substrate" is spelled incorrectly, Applicant has amended claim 4 to correct the misspelling.

II. Regarding the rejection claim 9 because it contains the trademark/trade name Parascan, Applicant has amended claim 9 to the following:

9. (Currently Amended) The method of claim 1, wherein said tunable dielectric is ~~Parasean® Tunable dielectric~~ barium strontium titanate.

Applicant submits this amendment traverses the objection to claim 9.

III. Claims 1, 7 and 8 were rejected under 35 U.S.C. 103(a) as being unpatentable over Cummings (US 4,336,320) in view of Bratschun (US 3,996,502). The office action stated that "Cummings discloses a method for making high density interconnection circuitry for multilayered hybrid micropackages. Dielectric thick film paste 21 is formed on ceramic substrate 20 and dried. Photoresist layer 22 is deposited and dried. These two steps may be combined into a single step is the dielectric paste includes a photosensitive constituent (see cl.7). The photosensitive material is then exposed to UV light through a photomask 23. Following exposure the substrate is treated with a developer which simultaneously removes or etches both the photoresist and the dielectric. Dielectric 21 is then fired (sintered) at a temperature of about 800-1000 °C (see col.1, 43-col.2, 21 and claims)."

The present office action submits that Cummings is silent on the exact composition of the dielectric and does not explicitly disclose that the dielectric thick film is tunable. Thus it is combined with Bratschun which purports to teach that thick film hybrid circuits generally have ceramic substrates and passive elements such as resistors, conductors and capacitors and that ceramic capacitors are known to include a barium titanate based dielectric (i.e. tunable dielectric) (col.1, 1-37). With a short parenthetical the barium titanate of Cummings is equated (i.e., "i.e.") to a tunable dielectric. However, applicant submits that the barium titanate of Cummings is not tunable. In fact no mention of tunability is provided at all in Cummings. Applicant has been

developing, innovating and improving tunable dielectric material for nearly ten years and is one of the foremost experts in the tunable dielectric materials field. Indeed the Cummings patent was filed on June 2, 1975, over 15 years prior to the development of tunable dielectric material.

Applicants respectfully submit that the Examiner cannot satisfy the basic requirements of a prima facie case of obviousness by using Cummings and Bratschun to reject pending independent Claim 1 and the associated dependent Claims 2-9. For the Examiner to establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the references. Second, there must be some reasonable expectation of success. Finally, the references when combined must teach or suggest all of the claimed limitations. Manual of Patent Examining Procedure, Section 2143. For the reasons articulated below, the Applicants believe that in the present case, the Examiner has not met this burden.

First, Applicants submit that Cummings cannot be properly combined with Bratschun to teach the inventioned as claimed in independent claim 1. Claim 1 recites:

1. (Original) A method of fabricating a tunable dielectric slurry, comprising:
 - depositing a thick film tunable dielectric onto a substrate;
 - subjecting said thick film to Ultra Violet (UV) radiation exposure after it is coated onto said substrate;
 - drying and baking said thick film and said substrate;
 - applying a developer to said thick film and said substrate, said developer capable of washing away an unexposed area of said thick film and retaining an exposed area enabling a latent pattern to be brought out and thus creating a patterned film; and
 - sintering said substrate.

Applicant submits that for the reasons articulated above neither Cummings nor Bratschun alone or in combination teach the limitation of: depositing a thick film tunable dielectric onto a substrate. Again, Applicant submits Barium titanate is not equivalent to a tunable dielectric.

Secondly, there must be some suggestion or motivation, either in the references or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the references. Applicant submits that since tunable dielectric material had not even been developed yet (the fact that the patent was assigned to Zenith Television Corp. is indicative of the age of the technology) would suggest that there could not have been a suggestion of combining the technology.

Finally, there must be some reasonable expectation of success. For the reasons just set forth, Applicant submits there could be no expectation of success to combine the two references to attain the present invention since neither art sets forth a tunable dielectric material.

IV. Claim 1 was rejected under 35 U.S.C. 103(a) as being obvious over Zhang (US 2004/0227228). As the applied reference has common inventors with the instant application. Applicant submits a showing under 37 CFR 1.132 in the form of an affidavit by Chen Zhan that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another". Applicant thereby believes this objection to be traversed.

V. Claim 1 was provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 12 of copending Application No. 10/760,875. Applicant submits herewith a terminal disclaimer and thus submits this rejection has been traversed.

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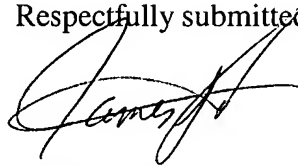
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CONCLUSION

It is respectfully submitted that, in view of the foregoing amendment and remarks, the application is in clear condition for allowance. The Office is hereby authorized to charge any additional fees or credit any overpayments under 37 C.F.R. 1.16 or 1.17 to Deposit Account No. 502697. The Examiner is invited to contact the undersigned at 202-607-4607 to discuss any matter regarding this application.

Respectfully submitted,



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